Remarks

Reconsideration of the application is respectfully requested. Claims 1-22 were rejected under Section 112 for being indefinite. Claim 1 has now been amended and all the claims should be in full conformance to the requirements of Section 112.

Claims 1, 4, 6, 10-22 were rejected under Section 102 as being anticipated by Sjolander Ca 2,313,685. This rejection is respectfully traversed. Claims 4, 6, 10-22 have been cancelled.

To summarize the present invention, it is an effective grinding apparatus for grinding drill bits wherein the feed pressure is varied depending upon the size of the grinding tool connected to the output drive shaft (as grinding tool size increases, feed pressure increases up to 350 kilos). In the preferred embodiment as feed pressure increases the rotational speed of the output drive shaft is reduced. In general, the grinding apparatus of the present invention operates at a rotational speed that is lower and at a feed pressure that is higher than the typical fixed rotational speeds and feed pressures used by conventional grinding apparatuses.

The cited Sjolander reference merely focuses on providing a bias side-load to the grinding machine. Sjolander fails, among other things, to teach or suggest changing the rotational speed of the grinding tool during grinding. Additionally, Sjolander does not vary and control the rotational speed of the output drive shaft based on the size the connected grinding tool.

It is therefore submitted that the cited Sjolander patent completely fails to teach or suggest means for varying and controlling a speed of rotation of the output drive shaft during grinding based on a size of a connected grinding tool.

The Examiner correctly states that Sjolander does not

specify that the grinding cup speed and pressure can be varied during a grinding cycle. Sjolander also fails to teach or suggest varying the rotational speed based on a size of the connected grinding tool.

Taninaga does not cure these deficiencies. The main purpose of Taninaga's invention is to control the removal of excess weld material from a workpiece. Taninaga merely teaches changing the amount of piercing when the load current change supplied to a grinder is not more than a predetermined threshold value (see abstract). When the amount of change in the load current exceeds the predetermined threshold value then the grinding speed is controlled according to the load current (see abstract). This means the grinding speed is controlled according to the load current change regardless whether the size of the grinding tool is changed.

Taninaga and the other cited references completely fail to teach or suggest varying the rotational speed based on the size of the grinding tool. In contrast, Taninaga teaches using the same rotational speed and feed pressure regardless of the size of the grinding tool. More particularly, in col. 3, lines 14-22, Taninaga explains that the piercing amount becomes small when the load current is low and large when the load current is high. When the load current is high, the grinding speed becomes low and when the load current is low the grinding speed becomes high. In other words, the size of the grinding tool is not considered at all by Taninaga.

Even if Taninaga is combined with Sjolander, although such combination is not taught or suggested all the limitations of the amended claim 1 are not met. It is submitted that none of the cited references teaches or suggest means for varying and controlling the rotational speed of the output drive shaft based on the size of the grinding tool. It is submitted that Taninaga's grinding speed controlling means for controlling the grinding speed according to the load current detected is distinctly different from the controlling

means of the present invention since Taninaga does not vary and control the rotational speed based on the size of the grinding tool used.

It is submitted that Sjolander and Taninaga would require extensive modifications that are not taught or suggested to meet the limitations of the amended claim 1. In the last paragraph of col. 2 and in the first paragraph of col. 3, Taninaga expressly explains that it is important to use the change in the load current to the grinding tool and compare this to a threshold value. When the load current change is less than the threshold value the piercing amount is controlled so as to follow the contour of the base metal of the parts and large raised parts can be finished to smooth surfaces while being shaped. If Taninaga is modified to only take the size of the grinding tool into account, the grinding speed would not be controlled so that the parts could be shaped without leaving any areas un-ground.

Applicant fails to see why a person of ordinary skill in the art would look to Sjolander and Taninaga to learn amount means for varying and controlling the rotational speed of the drive shaft during grinding based on the size of the grinding tool when the cited references completely fails to teach or suggest this feature.

In view of the above, it is submitted that the amended claim 1 is allowable.

Claims 2-3 were rejected under Section 103 as being obvious over Sjolander in view of Taninaga. This rejection is respectfully traversed.

Claims 2-3 have been cancelled.

Claims 5 and 9 were rejected under Section 103 as being obvious over Sjolander in view of Hori. This rejection is respectfully traversed.

Claims 5 and 9 have been cancelled.

Claims 7-8 were rejected under Section 103 as being obvious over Sjolander in view of Gudmundsson. This rejection

is respectfully traversed.

Claims 7-8 have been cancelled.

Claims 39-82 have been added to the application. The new claims contain no new matter.

The new independent claims 39-57 are submitted to be allowable because they depend upon the allowable base claim 1 and because each claim includes limitations that are not taught or suggested in the cited references.

The new independent claim 58 is submitted to be allowable for reasons similar to the reasons put forth for the allowability of the amended claim 1. More particularly, none of the cited references teaches or suggests means for providing a controlled variable feed pressure up to 350 kilograms based on the size of the connected grinding tool. As indicated above, Taninaga and Sjolander completely fails to take the size of the grinding tool into consideration when providing the controlled variable feed pressure up to 350 kg.

The new claim 58 is therefore submitted to be allowable.

The new independent claim 59 is submitted to be allowable for reasons similar to the reasons put forth for the allowability of the amended claim 1. It is submitted that none of the cited references teaches or suggest steps related to changing the rotational speed and feed pressure based on the size of the grinding tool. More particularly, none of the cited references teaches or suggest the steps of:

1) Determining a first size of the first grinding tool,

2) Providing a first rotational speed and a first feed pressure of the first grinding tool based on the first size,

3) Determining a second size of the second grinding tool, the second size being different than the first size,

4) Providing a second rotational speed and a second feed pressure of the second grinding tool based on the second size, and

5) Grinding the second drill bit at the second rotational speed and the second feed pressure.

In view of the above, it is submitted that the new claim 59 is allowable.

Claims 60-82 are submitted to be allowable because they depend upon the allowable base claim 59 and because each claim includes limitations that are not taught or suggested in the cited references.

The application is now submitted to be in condition for allowance, and such action is respectfully requested.

Respectfully submitted,
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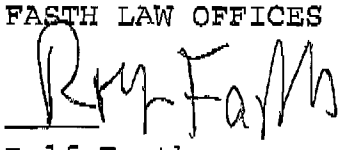

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